

**Junior High/High School
Scope & Sequence
HAFO Project**

Idaho State Standards to be Addressed:

Standard 1: Nature of Science

Goal 1.1: Understand Systems, Orders, and Organization

8-9ES 1.1.1: Explain the scientific meaning of systems,
order, and organization

8-9 ES 1.1.2: Apply the concepts of order and organization
to a given system.

Standard 4: Earth & Space Systems

Goal 4.1: Understand Scientific Theories of Origin and

Subsequent Changes in the Universe and Earth System

8-9.ES.4.1.3 Show how interactions among the solid earth,
oceans, atmosphere, and organisms have changed the
earth system over time. (654.01c)

Standard 5: Personal and Social Perspectives; Technology

Goal 5.1: Understand Common Environmental Quality

Issues, Both Natural and Human Induce

8-9.ES.5.1.1 Analyze environmental issues such as water
and air quality, hazardous waste, and depletion of natural
resources. (656.01a)

Instructional Goals: Students Will:

- 1) Students will be able to learn the six major types of biomes on the planet.
- 2) Students will be able to understand the water cycle.
- 3) Students will be able to learn the three basic types of clouds.
- 4) Students will be able to understand the difference between weather and climate.
- 5) Students will be able to understand what happens when climates change.
- 6) Students will be able to understand the basics of ancient climates in Idaho and different types of animals that once existed in Idaho.

Method(s) of Assessment:

- 1 Observation of students as they conduct experiments and lessons.
- 2 Quiz or Test to check for understanding at end of each lesson.

Time Needed:

These activities will generally take 60 minutes each day.

Lesson 1: Weather Factors

Time	Presentation
Day 1	Follow the developed ppt. presentation if desired at this point Electromagnetic Waves Radiation Visible Light Infrared Light Ultraviolet Radiation Greenhouse Effect
Time	Activity
Day 2	Checking for understanding on the following terms: Electromagnetic Waves Radiation Visible Light Infrared Light Ultraviolet Radiation Greenhouse Effect

Lesson 2: Heat Transfer

Time	Presentation
Day 3	Follow the developed ppt. presentation if desired at this point Temperature Thermal Energy Thermometer Celsius Fahrenheit
Time	Presentation & Activity
	Calculating Celsius to Fahrenheit
Time	Presentation
Day 4	Radiation Conduction Convection
Time	Activity
	Showing Radiation, Conduction, Convection with boiling water.
Time	Activity

Day 5	Checking for understanding on the following terms:	
	Temperature	Fahrenheit
	Thermal Energy	Radiation
	Thermometer	Conduction
	Celsius	Convection

Lesson 3: Winds

Time	Presentation		
Day 6	Follow the developed ppt. presentation if desired at this point		
	Wind		
	Anemometer		
Time	Activity		
Day 7	Building an Anemometer: Follow instructions in presentation.		
Time	Activity		
Day 8	Go outside and calibrate and test the workings of the anemometers		
Time	Presentation		
Day 9 and Day 10	Follow the developed ppt. presentation if desired at this point		
	Local wind	Coriolis Effect	Doldrums
	Sea Breeze	Trade Winds	Horse Latitudes
	Land Breeze	Polar Easterlies	Trade Winds
	Global Winds	Prevailing Westerlies	Jet stream
Time	Activity		
Day 11	Checking for understanding on the following terms:		
	Wind	Global Winds	Doldrums
	Anemometer	Coriolis Effect	Horse Latitudes
	Local wind	Trade Winds	Trade Winds
	Sea Breeze	Polar Easterlies	Jet stream
	Land Breeze	Prevailing Westerlies	

Lesson 4: Water in the Atmosphere

Time	Presentation	
	Follow the developed ppt. presentation if desired at this point	
Day 12	Water Cycle	Humidity
	Evaporation	Relative Humidity

	Condensation Precipitation Accumulation
Time	Presentation
Day 13	<p>Follow the developed ppt. presentation if desired at this point</p> <p>Cirrus Cumulonimbus Cumulus Fog Stratus</p> <p>Activity: Cloud in a Bottle</p> <p>Directions: Go to the following website, and follow the directions http://www.weatherwizkids.com/cloud1.htm</p>
Time	Activity
Day 14	<p>Checking for understanding on the following terms:</p> <p>Water Cycle Humidity Cumulonimbus Evaporation Relative Humidity Fog Condensation Cirrus Precipitation Cumulus Accumulation Stratus</p>

Lesson 5: Precipitation

Time	Presentation
Day 15	<p>Follow the developed ppt. presentation if desired at this point</p> <p>Rain Snow Sleet Hail Freezing Rain</p>
Time	Activity
Day 16	<p>Checking for understanding on the following terms:</p> <p>Rain Snow Sleet Hail Freezing Rain</p>

Lesson 6: What Causes Climate

Time	Presentation
Day 17	<p>Follow the developed ppt. presentation if desired at this point</p> <p>Weather Polar Zone Climate Temperate Zone</p>

	Microclimate Latitude Tropical Zone
	Presentation
Day 18	Follow the developed ppt. presentation if desired at this point Altitude Windward Marine Climate Leeward Continental
Time	Activity
Day 19	Checking for understanding on the following terms: Weather Polar Zone Windward Climate Temperate Zone Leeward Microclimate Altitude Latitude Marine Climate Tropical Zone Continental

Lesson 7: Climate Regions

Time	Presentation
Day 20	Follow the developed ppt. presentation if desired at this point Temperature Dry Precipitation Arid Tropical Rainy Desert Tropical Wet and Dry Semiarid Savanna Steppe
Time	Presentation
Day 21	Follow the developed ppt. presentation if desired at this point Temperate Marine Subarctic Temperate Continental Polar Climate Marine West coast Tundra Humid Subtropics Permafrost Mediterranean Highlands
Time	Activity
Day 22	Checking for understanding on the following terms: Temperature Dry Subarctic Precipitation Arid Polar Climate Tropical Rainy Desert Tundra Tropical Wet and Dry Semiarid Permafrost Savanna Steppe Highlands

	Temperate Marine Temperate Continental Marine West coast	Humid Subtropics Mediterranean
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Lesson 8: Long Term Climate Change

Time	Presentation
Day 23	Follow the developed ppt. presentation if desired at this point Tree Rings Solar Energy Ice Ages Volcanic Activity Glaciers Pangaea Earth's Position
Time	Activity
Day 24	Checking for understanding on the following terms: Tree Rings Solar Energy Ice Ages Volcanic Activity Glaciers Pangaea Earth's Position

Lesson 9: Pale ecosystems

Time	Activity
Day 25	Bring in National Park Service Presenter for this Portion http://imnh.isu.edu/digitalatlas/teach/subfrm.htm Click on Hagerman Diorama
Day 26	Digital atlas of Idaho : Hagerman Diorama NPS Software Design

